

Applied in this way, 1.4-1.6 lb a.i. per acre (1.6-1.8 kg a.i. per hectare) satisfactorily controlled both weed species, while tomatoes were not damaged at rates below 2.5 lb a.i. per acre (2.8 kg a.i. per hectare).

Germination of *S. nigrum* occurred in treated plots 5-7 weeks after soil incorporation of 1.6 lb a.i. per acre, while *E. crus-galli* was controlled for 12 weeks by the same treatment. Similar observations on the relatively short residual activity of Bayer 94 337 have been made in other trials.

Overseas data show that many annual weed species are susceptible to pre-emergence treatments of 0.5-2 lb a.i. per acre (0.6-2.2 kg a.i. per hectare). Other crops in which tolerance has been demonstrated include soybeans, potatoes, beans, peas, maize, sorghum, asparagus, and sugarcane.

The molecular weight of Bayer 94 337 is 214.3.

Its solubility in water is 1200 p.p.m.

EVALUATION OF RH-315 AS A HERBICIDE IN LETTUCE

B.D. Robinson
ICIANZ

INTRODUCTION

In order to evaluate RH-315 ('Kerb') as a pre-emergence herbicide for lettuce in the Melbourne metropolitan vegetable-growing areas, six trials were carried out by the author and R. Allison over the 6-month period from December 1969 to July 1970. The safety of RH-315 to lettuce had been established and these trials were designed to evaluate weed control efficacy at different times of the year and on different soil types.

METHOD AND DESIGN

RH-315 was applied at 0.75, 1, and 1.5 lb a.i. per acre (0.83, 1.11 and 1.67 kg per hectare) in the first two trials. It was

found that 0.75 lb a.i. did not give sufficiently good control or useful information and the range of rates was altered to 1, 1.5, and 2 lb a.i. per acre (1.1, 1.67, 2.22 kg per hectare). The chemical was applied using a knapsack sprayer and a 4.5 ft (1.32 m) spray boom using a 3 x 3 latin square design. In all cases RH-315 was applied 0-4 days after sowing, and, unless the soil was moist, an overhead spray irrigation of 0.5 in (12.7 mm) was applied as soon as possible after spraying. Details of the trials are as follows:

Soil types	Very light sand to light clay loam
Lettuce Varieties	Imperial D, Imperial 847, and Yatesdale
Plot size	40 ft x 4.5 ft (12.40m x 1.32 m)
Speed	2 mph = 3.22 k per hour
Volume of water	50 gal. per acre (92 litres per hectare)
Assessment	Weed kill by species was rated from 0 to 10 (10 = 100% kill) by two independent observers.

RESULTS

Crop Phytotoxicity

No crop phytotoxicity was observed in any of the trials, and in all trials treatment plants grew larger and reached marketing stage earlier than untreated or hand-weeded controls.

Weed Control

This proved to be excellent in all cases except at one site where *Galinsoga* spp. was present; for summer weeds rates of 1.5 -2 lb a.i. were needed to give acceptable commercial control of all species.

The only resistant species were *Galinsoga* spp., *Sonchus* spp., *Medicago* spp., *Trifolium* spp., *Cotula australis*, and *Arctotheca calendula*. The first two species were serious weeds in one trial only.

The results of the six trials showed that the weeds common to the trials could be classified into various degrees of susceptibility as follows:

Weeds controlled at 0.75-1.0 lb a.i. per acre:

Portulaca oleracea
Chenopodium album
Urtica urens
Stellaria media
Capsella bursa-pastoris
Polygonum aviculare

Weeds controlled at 1-1.5 lb a.i. per acre:

Solanum nigrum
Digitaria sanguinalis

Weeds controlled at 1.5-2.0 lb a.i. per acre:

Amaranthus retroflexus

Subsequent trials indicate that winter weeds are more susceptible to RH-315 than summer weeds. RH-315 gives good control of the following at 0.75-1.5 lb a.i. per acre:

<i>Poa annua</i>	<i>Urticae</i> spp.
<i>Lolium perenne</i>	<i>Stellaria media</i>
<i>Polygonum aviculare</i>	

SUMMARY

RH-315 at the rates of 1.5-2.0 lb a.i. per acre will control all the important weeds in lettuce in the Melbourne market garden area. Lower rates of 1-1.5 lb a.i. per acre may be suitable for autumn and winter weeds in the same area.